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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference XP12253-PCT	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/KR2003/002283	International filing date (day/month/year) 28 OCTOBER 2003 (28.10.2003)	Priority date (day/month/year) 30 OCTOBER 2002 (30.10.2002)

International Patent Classification (IPC) or national classification and IPC.

IPC7 H04M 1/23

Applicant

TIMESPACE SYSTEM CO., LTD. et al

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 16 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 27 MAY 2004 (27.05.2004)	Date of completion of this report 13 JANUARY 2005 (13.01.2005)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea	Authorized officer SHIN, Jun Ho Telephone No. 82-42-481-8129
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/002283

I. Basis of the report

1. With regard to the elements of the international application:*

- the international application as originally filed
- the description:
pages 1-13 15-17, as originally filed
pages 14, filed with the demand
pages _____, filed with the letter of _____
- the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages 18-32, filed with the letter of 13.12.2003
- the drawings:
pages 1/6 - 6/6, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2: With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages _____
- the claims, Nos. 3, 4, 11, 12
- the drawings, sheets _____

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed," and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/002283

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	<u>1, 2, 5-10, 13, 14</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>1, 2, 5-10, 13, 14</u>	YES
	Claims	<u>NONE</u>	NO
Industrial applicability (IA)	Claims	<u>1, 2, 5-10, 13, 14</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations (Rule 70.7)**1. NOVELTY AND INVENTIVE STEP**

Reference is made to the following documents

D1 : KR 2001-54288 A (2 July 2001)

D2 : KR 2002-55883 A (10 July 2002)

D1 discloses a character input device using basic sentence patterns. The device is composed of a basic sentence pattern input part, a character recognition part and a character output part.

D2 discloses a keyboard unit which includes each input key for separating a grapheme as 10 basic sentences used in consonants and vowels of Hangul and alphabets of English in common and inputting each basic sentence. A character recognizing unit has a phoneme combining module for combining electric signals generated by the click of input keys of the keyboard unit, recognizing the combined electric signal as one basic phoneme through a phoneme recognizing unit, combining the recognized basic phonemes, and generating a syllable.

The subject matter of claim 1 differs from D1 and D2 in the shape of extracted basic figures which are marked on the keypad. Some of the extracted basic figures in claim 1 comprise solid lines and dot lines, which make it easy to input "B", "D", "P", "V", "U", "X", "J", "Z". Therefore, the subject matter of claim 1 is considered to have novelty and an inventive step.

Claim 10 relates to a method using the apparatus of claim 1. Therefore claim 10 is considered to have novelty and an inventive step.

Since claims 2,5-9,13,14 are dependant claims, they are also considered to have novelty and an inventive step.

2. INDUSTRIAL APPLICABILITY

The subject matter of claims 1,2,5-10,13,14 is considered to be industrially applicable.

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(i.e., if the input key 8 are successively pressed twice), the alphabet capital letter “O” is coded by the basic figure *O*. If the input key 3 and the input key 3 are sequentially pressed (i.e., if the input key 3 are successively pressed twice), the alphabet capital letter “O” is coded by 5 the basic figure *P*. If the input key 8 and the input key 7 are sequentially pressed (i.e., by the combination of the basic figures *O* and \), the alphabet capital letter “Q” is coded. If the input key 3 and the input key 7 are sequentially pressed (i.e., by the combination of the basic figures *P* and \), the alphabet capital letter “R” is coded. If the input key 4 and 10 the input key 6 are sequentially pressed (i.e., by the combination of the basic figures *C* and \), the alphabet capital letter “S” is coded. If the input key 2 and the input key 5 are sequentially pressed (i.e., by the combination of the basic figures — and *I*), the alphabet capital letter “T” is coded. If the input key 8 and the input key 5 are sequentially 15 pressed (i.e., by the combination of the basic figures *O* and *I*), the alphabet capital letter “U” is coded. If the input key 7 and the input key 9 are sequentially pressed (i.e., by the combination of the basic figures \ and *Z*), the alphabet capital letter “V” is coded. If the input key 7 and the input key 1 are sequentially pressed (i.e., by the combination of the 20 basic figures \ and *N*), the alphabet capital letter “W” is coded. If the input key 9 and the input key 7 are sequentially pressed (i.e., by the combination of the basic figures *Z* and \) or if the input key 9 and the input key 7 are sequentially pressed (i.e., by the combination of the basic figures \ and *C*), the alphabet capital letter “X” is coded. If the input 25 key 7 and the input key 0 are sequentially pressed (i.e., by the combination of the basic figures \ and *J*) or if the input key 8 and the input key 0 are sequentially pressed (i.e., by the combination of the basic figures *O* and *J*), the alphabet capital letter “Y” is coded. If the input

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What is claimed is:

1. An alphabet input apparatus comprising:
 - 5 a key input part having input keys on which predetermined number of basic figures extracted by analyzing shapes of alphabet capital letters are engraved;
 - a database part for storing alphabet information coded by a combination of two input key code values sequentially generated by the
 - 10 key input part; and
 - a character determination part for, when a code value is received from the key input part, sequentially extracting respective two input key code values to determine an alphabet corresponding to a permutation of the extracted code values from the alphabet information stored in the
 - 15 database part.
2. The alphabet input apparatus of claim 1, further comprising a character display part for displaying an alphabet determined at the character determination part.
- 20 3. The alphabet input apparatus of claim 1, wherein the key input part has 10 input keys.
4. The alphabet input apparatus of claim 3, wherein the basic figures allocated to the 10 input keys are *N*, *-*, *P*, *C*, *I*, *D*, **, *O*,
25 *Z*, and *J*.

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5. The alphabet input apparatus of claim 4, wherein the database part stores information:

coding an alphabet capital letter "A" by a permutation of code values Λ and \neg ;

5 coding an alphabet capital letter "B" by a permutation of code values P and \triangleright ;

coding an alphabet capital letter "C" by a permutation of code values C and C ;

10 coding an alphabet capital letter "D" by a permutation of code values I and \triangleright ;

coding an alphabet capital letter "E" by a permutation of code values C and \neg ;

coding an alphabet capital letter "F" by a permutation of code values \neg and P ;

15 coding an alphabet capital letter "G" by a permutation of code values C and J ;

coding an alphabet capital letter "H" by a permutation of code values P and I ;

20 coding an alphabet capital letter "I" by a permutation of code values I and I ;

coding an alphabet capital letter "J" by a permutation of code values J and J ;

coding an alphabet capital letter "K" by a permutation of code values I and C ;

25 coding an alphabet capital letter "L" by a permutation of code values I and \neg ;

coding an alphabet capital letter "M" by a permutation of code

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values N and \setminus ;

coding an alphabet capital letter "N" by a permutation of code values N and N ;

5 coding an alphabet capital letter "O" by a permutation of code values O and O ;

coding an alphabet capital letter "P" by a permutation of code values P and P ;

coding an alphabet capital letter "Q" by a permutation of code values O and \setminus ;

10 coding an alphabet capital letter "R" by a permutation of code values P and \setminus ;

coding an alphabet capital letter "S" by a permutation of code values C and D ;

15 coding an alphabet capital letter "T" by a permutation of code values $-$ and I ;

coding an alphabet capital letter "U" by a permutation of code values O and I ;

coding an alphabet capital letter "V" by a permutation of code values \setminus and Z ;

20 coding an alphabet capital letter "W" by a permutation of code values \setminus and N ;

coding an alphabet capital letter "X" by a permutation of code values Z and \setminus or a permutation of code values D and C ;

25 coding an alphabet capital letter "Y" by a permutation of code values \setminus and J or a permutation of code values O and J ; and

coding an alphabet capital letter "Z" by a permutation of code values Z and Z .

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6. The alphabet input apparatus of claim 4, wherein the database part stores information:

coding an alphabet small letter "a" by a permutation of code values **C** and ****;

5 coding an alphabet small letter "b" by a permutation of code values **I** and **D**;

coding an alphabet small letter "c" by a permutation of code values **C** and **C**;

10 coding an alphabet small letter "d" by a permutation of code values **C** and **I**;

coding an alphabet small letter "e" by a permutation of code values **-** and **C**;

coding an alphabet small letter "f" by a permutation of code values **Z** and **-** or a permutation of code values **J** and **-**;

15 coding an alphabet small letter "g" by a permutation of code values **C** and **J**;

coding an alphabet small letter "h" by a permutation of code values **P** and **I**;

20 coding an alphabet small letter "i" by a permutation of code values **I** and **I**;

coding an alphabet small letter "j" by a permutation of code values **J** and **J**;

coding an alphabet small letter "k" by a permutation of code values **I** and **C** or a permutation of code values **P** and ****;

25 coding an alphabet small letter "l" by a permutation of code values **J** and ****;

coding an alphabet small letter "m" by a permutation of code

values N and I or a permutation of code values N and \backslash ;
coding an alphabet small letter "n" by a permutation of code
values N and N or a permutation of code values I and N ;

5 coding an alphabet small letter "o" by a permutation of code
values O and O ;

 coding an alphabet small letter "p" by a permutation of code
values P and P ;

 coding an alphabet small letter "q" by a permutation of code
values C and Z ;

10 coding an alphabet small letter "r" by a permutation of code
values I and Z ;

 coding an alphabet small letter "s" by a permutation of code
values C and D ;

15 coding an alphabet small letter "t" by a permutation of code
values $-$ and I ;

 coding an alphabet small letter "u" by a permutation of code
values O and I ;

 coding an alphabet small letter "v" by a permutation of code
values \backslash and Z or a permutation of code values O and $-$;

20 coding an alphabet small letter "w" by a permutation of code
values \backslash and N ;

 coding an alphabet small letter "x" by a permutation of code
values Z and \backslash or a permutation of code values D and C ;

25 coding an alphabet small letter "y" by a permutation of code
values \backslash and J or a permutation of code values O and J ; and

 coding an alphabet small letter "z" by a permutation of code
values Z and Z .

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7. The alphabet input method of claim 1, wherein the key input part further includes a shift key for shifting a capital letter to a small letter.

5 8. The alphabet input apparatus of claim 8, wherein the basic figures allocated to the input keys are *N*, *–*, *P*, *C*, *I*, *D*, **, *O*, *Z*, and *J*.

9. The alphabet input apparatus of claim 8, wherein the 10 database part stores information:

coding an alphabet capital letter "A" by a permutation of code values *N* and *–*;

coding an alphabet capital letter "B" by a permutation of code values *P* and *D*;

15 coding an alphabet capital letter "C" by a permutation of code values *C* and *C*;

coding an alphabet capital letter "D" by a permutation of code values *I* and *D*;

20 coding an alphabet capital letter "E" by a permutation of code values *C* and *–*;

coding an alphabet capital letter "F" by a permutation of code values *–* and *P*;

coding an alphabet capital letter "G" by a permutation of code values *C* and *J*;

25 coding an alphabet capital letter "H" by a permutation of code values *P* and *I*;

coding an alphabet capital letter "I" by a permutation of code

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values I and I ;

coding an alphabet capital letter "J" by a permutation of code values J and J ;

5 coding an alphabet capital letter "K" by a permutation of code values I and C ;

coding an alphabet capital letter "L" by a permutation of code values I and $-$;

coding an alphabet capital letter "M" by a permutation of code values N and \setminus ;

10 coding an alphabet capital letter "N" by a permutation of code values N and N ;

coding an alphabet capital letter "O" by a permutation of code values O and O ;

15 coding an alphabet capital letter "P" by a permutation of code values P and P ;

coding an alphabet capital letter "Q" by a permutation of code values O and \setminus ;

coding an alphabet capital letter "R" by a permutation of code values P and \setminus ;

20 coding an alphabet capital letter "S" by a permutation of code values C and D ;

coding an alphabet capital letter "T" by a permutation of code values $-$ and I ;

25 coding an alphabet capital letter "U" by a permutation of code values O and I ;

coding an alphabet capital letter "V" by a permutation of code values \setminus and Z ;

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coding an alphabet capital letter "W" by a permutation of code values \setminus and N ;

coding an alphabet capital letter "X" by a permutation of code values Z and \setminus or a permutation of code values D and C ;

5 coding an alphabet capital letter "Y" by a permutation of code values \setminus and J or a permutation of code values O and J ; and

coding an alphabet capital letter "Z" by a permutation of code values Z and Z ,

and stores information:

10 coding an alphabet small letter "a" by a permutation of code values C and \setminus ;

coding an alphabet small letter "b" by a permutation of code values I and D ;

15 coding an alphabet small letter "c" by a permutation of code values C and C ;

coding an alphabet small letter "d" by a permutation of code values C and I ;

coding an alphabet small letter "e" by a permutation of code values $-$ and C ;

20 coding an alphabet small letter "f" by a permutation of code values Z and $-$ or a permutation of code values J and $-$;

coding an alphabet small letter "g" by a permutation of code values C and J ;

25 coding an alphabet small letter "h" by a permutation of code values P and I ;

coding an alphabet small letter "i" by a permutation of code values I and I ;

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- coding an alphabet small letter "j" by a permutation of code values J and J ;
- coding an alphabet small letter "k" by a permutation of code values I and C or a permutation of code values P and \setminus ;
- 5 coding an alphabet small letter "l" by a permutation of code values J and \setminus ;
- coding an alphabet small letter "m" by a permutation of code values N and I or a permutation of code values N and \setminus ;
- 10 coding an alphabet small letter "n" by a permutation of code values N and N or a permutation of code values I and N ;
- coding an alphabet small letter "o" by a permutation of code values O and O ;
- 15 coding an alphabet small letter "p" by a permutation of code values P and P ;
- coding an alphabet small letter "q" by a permutation of code values C and Z ;
- 20 coding an alphabet small letter "r" by a permutation of code values I and Z ;
- coding an alphabet small letter "s" by a permutation of code values C and D ;
- 25 coding an alphabet small letter "t" by a permutation of code values $-$ and I ;
- coding an alphabet small letter "u" by a permutation of code values O and I ;
- 30 coding an alphabet small letter "v" by a permutation of code values \setminus and Z or a permutation of code values O and $-$;
- coding an alphabet small letter "w" by a permutation of code

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values \setminus and N ;

coding an alphabet small letter "x" by a permutation of code values Z and \setminus or a permutation of code values D and C ;

5 coding an alphabet small letter "y" by a permutation of code values \setminus and J or a permutation of code values O and J ; and

coding an alphabet small letter "z" by a permutation of code values Z and Z ,

wherein one of the capital latter coding information and the small letter coding information is selected by a shift key code value generated
10 by the shift key.

10. An alphabet input method comprising:

generating first and second input key code values from input keys to which predetermined number of basic figures extracted by analyzing
15 shapes of alphabet capital letters are allocated, respectively;

setting a generation order of the two input key code values by a permutation of an input key code value; and

determining an alphabet corresponding to a permutation of an input key code value generated from the input keys by reference to
20 alphabet information coded by the permutation of the two input key code values.

11. The alphabet input method of claim 10, wherein the key input part has 10 input keys.

25

12. The alphabet input method of claim 11, wherein the basic figures allocated to the 10 input keys are N , $-$, P , C , I , D , \setminus , O ,

and Z.

13. The alphabet input method of claim 12, wherein the database part stores information:
- 5 coding an alphabet capital letter "A" by a permutation of code values **N** and **—**;
- coding an alphabet capital letter "B" by a permutation of code values **P** and **D**;
- 10 coding an alphabet capital letter "C" by a permutation of code values **C** and **C**;
- coding an alphabet capital letter "D" by a permutation of code values **I** and **D**;
- coding an alphabet capital letter "E" by a permutation of code values **C** and **—**;
- 15 coding an alphabet capital letter "F" by a permutation of code values **—** and **P**;
- coding an alphabet capital letter "G" by a permutation of code values **C** and **J**;
- 20 coding an alphabet capital letter "H" by a permutation of code values **P** and **I**;
- coding an alphabet capital letter "I" by a permutation of code values **I** and **I**;
- coding an alphabet capital letter "J" by a permutation of code values **J** and **J**;
- 25 coding an alphabet capital letter "K" by a permutation of code values **I** and **C**;
- coding an alphabet capital letter "L" by a permutation of code

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values I and $-$;

coding an alphabet capital letter "M" by a permutation of code values N and \setminus ;

5 coding an alphabet capital letter "N" by a permutation of code values N and N ;

coding an alphabet capital letter "O" by a permutation of code values O and O ;

coding an alphabet capital letter "P" by a permutation of code values P and P ;

10 coding an alphabet capital letter "Q" by a permutation of code values O and \setminus ;

coding an alphabet capital letter "R" by a permutation of code values P and \setminus ;

15 coding an alphabet capital letter "S" by a permutation of code values C and D ;

coding an alphabet capital letter "T" by a permutation of code values $-$ and I ;

coding an alphabet capital letter "U" by a permutation of code values O and I ;

20 coding an alphabet capital letter "V" by a permutation of code values \setminus and Z ;

coding an alphabet capital letter "W" by a permutation of code values \setminus and N ;

25 coding an alphabet capital letter "X" by a permutation of code values Z and \setminus or a permutation of code values D and C ;

coding an alphabet capital letter "Y" by a permutation of code values \setminus and J or a permutation of code values O and J ; and

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· coding an alphabet capital letter "Z" by a permutation of code values **Z** and **Z**.

14. The alphabet input method of claim 12, wherein the
5 database part stores information:

coding an alphabet small letter "a" by a permutation of code values **C** and **\;**;

coding an alphabet small letter "b" by a permutation of code values **I** and **D**;

10 coding an alphabet small letter "c" by a permutation of code values **C** and **C**;

coding an alphabet small letter "d" by a permutation of code values **C** and **I**;

15 coding an alphabet small letter "e" by a permutation of code values **-** and **C**;

coding an alphabet small letter "f" by a permutation of code values **Z** and **-** or a permutation of code values **J** and **-**;

coding an alphabet small letter "g" by a permutation of code values **C** and **J**;

20 coding an alphabet small letter "h" by a permutation of code values **P** and **I**;

coding an alphabet small letter "i" by a permutation of code values **I** and **I**;

25 coding an alphabet small letter "j" by a permutation of code values **J** and **J**;

coding an alphabet small letter "k" by a permutation of code values **I** and **C** or a permutation of code values **P** and **\;**;

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- coding an alphabet small letter "l" by a permutation of code values J and \setminus ;
- coding an alphabet small letter "m" by a permutation of code values N and I or a permutation of code values N and \setminus ;
- 5 coding an alphabet small letter "n" by a permutation of code values N and N or a permutation of code values I and N ;
- coding an alphabet small letter "o" by a permutation of code values O and O ;
- 10 coding an alphabet small letter "p" by a permutation of code values P and P ;
- coding an alphabet small letter "q" by a permutation of code values C and Z ;
- coding an alphabet small letter "r" by a permutation of code values I and Z ;
- 15 coding an alphabet small letter "s" by a permutation of code values C and D ;
- coding an alphabet small letter "t" by a permutation of code values $-$ and I ;
- 20 coding an alphabet small letter "u" by a permutation of code values O and I ;
- coding an alphabet small letter "v" by a permutation of code values \setminus and Z or a permutation of code values O and $-$;
- coding an alphabet small letter "w" by a permutation of code values \setminus and N ;
- 25 coding an alphabet small letter "x" by a permutation of code values Z and \setminus or a permutation of code values D and C ;
- coding an alphabet small letter "y" by a permutation of code

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values J and J' or a permutation of code values O and O' ; and
coding an alphabet small letter "z" by a permutation of code
values Z and Z' .